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Reactive oxygen species play critical roles in the development and progression of diabetic nephropathy (DN). To evaluate the effect of antioxidant therapy on renal damage, we investigated the effect of green tea catechin on oxidative stress-induced renal cell damage in LLC-PK cells and DN induced by subtotal nephrectomy plus streptozotocin injection in rats, Antioxidant activities of 6 green tea catechins were evaluated by 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging activity test. Protective effect of (-)-epigallocatechin 3-O-gallate (EGCG) as a representative tea catechin against oxidative renal cell damage was measured in LLC-PK cells. EGCG showed the strongest DPPH radical scavenging activity and protected renal epithelial LLC-PK cells from oxidative damage in the dose-dependent manner. Hyperglycemia, proteinuria and the elevated lipid peroxidation levels were reduced by EGCG administration. The renal protein expressions related to diabetic nephropathy such as iNOS, COX-2, NF-κB, phosphorylated IκB-α, TGF-β1 and fibronectin were significantly decreased after EGCG treatment.

In conclusion, EGCG has beneficial effects on DN by suppressing hyperglycemia and related oxidative stress in kidney.*Corresponding author.

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DEPRESSION IS ASSOCIATED WITH MUSCLE MASS AND STRENGTH IN PATIENTS WITH END STAGE RENAL DISEASE

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Depression is the most common psychiatric complication in patients with end-stage renal disease (ESRD). Sarcopenia, defined as loss of muscle mass and strength, is expected to be associated with depression, because both are closely linked to physical inactivity and functional impairment. We investigated the association of sarcopenia with depression in patients with ESRD. A total of 115 patients undergoing hemodialysis (HD) were included in this study. Muscle mass was assessed by lean tissue index (LTI) using portable whole body bioimpedance spectroscopy, and muscle strength was measured with handgrip strength (HGS). Depression was defined as Beck Depression Inventory-II (BDI-II) score ≥ 16. About 60% of prevalent HD patients had depression. Compared to subjects without depression, depressed patients had a higher prevalence of sarcopenia (45.5 vs. 8.2%, $p < 0.001$) and significantly increased serum IL-6 and hs-CRP level. However, (pre)albumin and body mass index (BMI) failed to correlate with BDI-II. HGS and LTI had a consistent negative effect on BDI-II even after adjusting other parameters including inflammation. In multivariate analysis, lower , increased IL-6 and β2-microglobulin,and sarcopenia were significant predictors for depression; sarcopenia was most powerful [odds ratio 9.01, 95% CI 3.60-12.22, $p=0.001$]. In conclusion, the prevalence of sarcopenia and depression was considerably high and and the presence of sarcopenia was an important predictor for depression.

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USING A WEB-BASED NUTRITION ALGORITHM IN HEMODIALYSIS (HD) PATIENTS

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Nutrition care is complex and encompasses evaluation and correction of protein-energy wasting plus many nutrition abnormalities such as hyperphosphatemia, abdominal obesity, and risk factors of cardiovascular disease. The purpose of this study was to test a nutritionally comprehensive algorithm for feasibility and functionality in a diverse group of HD patients. This was a prospective, observational study designed to test a nutrition algorithm for 1) clinical feasibility; 2) logical progression; 3) ability to collect data; and 4) effectiveness in improving outcomes. Patients included in this study were enrolled by renal dietitians (RD) working in HD units based in five different countries. To select study subjects, RD were asked to screen and consent patients in their facilities until 4 patients were identified as at nutrition risk per the algorithm's screening tool. All data were collected via the algorithm including screening, assessment, nutrition related diagnosis, etiology of the nutrition diagnosis, nutrition related barriers, nutrition focused interventions, and outcome parameters. Statistics were performed using SPSS vs 20.0 and significance set at $p < 0.05$. One hundred patients, enrolled by 29 RD, were included in this analysis. The screening parameters that triggered an "at risk flag" for more than 50% of the patients were: PTH, serum cholesterol and unintentional weight loss. Of the patients with an albumin of < 3.8 mg/dl (37% of sample), 73% were given a nutritional diagnosis of insufficient protein intake. Overall, patients with insufficient intake had significantly lower serum albumin concentrations at baseline than those who did not have this (3.7 ± 0.4 vs. 4.0 ± 0.4, $p < 0.05$). Patients with a diagnosis of "high phosphorus" had decreases in serum PTH (349.5 ± 184.5 to 201.7 ± 113.6, $p=0.06$) and phosphorus (from 6.5 ± 1.0–5.3 ± 1.9 mg/dl, $p=0.04$) at the three month data collection. This study is the first of its kind to show that a web-based, HD specific, nutrition algorithm is feasible and effective.

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EFFECTIVENESS OF L-CARNITINE SUPPLEMENTATION IN PATIENTS WITH ERYTHROPOIETIN-RESISTANT ANEMIA

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Whilst L-carnitine (LC) supplementation is recommended for the treatment of EPO-resistant anemia, the extent of effectiveness has been shown to vary considerably. Previous work by Reuter *et al* (2008) demonstrated a significant association between EPO-resistance and carnitine pool composition; based on these findings, it is hypothesized that patients who have a high EPO resistance index (ERI) are more likely to respond to LC supplementation. Preliminary assessment of this hypothesis was conducted as retrospective analysis, using prospectively-defined criteria, of data from 2 randomized, double-blind, placebo-controlled trials. HD patients were administered LC (20 mg/kg/wk/dialysis i.v.) or placebo for 24 weeks, with EPO dose and hemoglobin data assessed at Weeks 0, 12 & 24. Patients were classified as High (> 0.02 μg/kg/wk/gHb) or Low ERI based on baseline data. Treatment effectiveness was analyzed using %baseline ERI for all patients (Low ERI & High ERI) and for High ERI patients only. 77 patients (38 LC/39 placebo) were included in the analysis, of which 22 (14 LC/8 placebo) were classified as High ERI. Analysis of all patient data indicated no significant differences between Week 0, 12 & 24 %baseline ERI for neither the LC nor placebo groups, whereas analysis of High ERI patient data indicated a significant reduction in %baseline ERI at Week 12 & 24 compared to Week 0 ($p=0.004$) for the LC treatment group, with no significant placebo treatment effect. Similarly, analysis of %baseline ERI area-under-the-curve from 0–24 weeks indicated no significant treatment effects when all patients were included in the analysis, whereas for High ERI patients, significantly lower values were demonstrated for LC vs placebo ($p=0.016$). These findings suggest that High ERI patients may receive the most benefit from LC supplementation. It is proposed that LC treatment results in an improvement in CPT activity via normalization of the LC/acylcarnitine ratio, thereby resulting in stabilization of the RBC membrane and improvement in anemia. A randomized, double-blind, placebo-controlled study is being conducted to investigate this further.

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EFFECT OF BRAZILIAN NUT SUPPLEMENTATION ON ANTIOXIDANT, INFLAMMATORY AND LIPIDS STATUS IN HEMODIALYSIS PATIENTS

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Dietary intake of selenium (Se) plays an important role as an antioxidant and anti-inflammatory agent due to its antioxidant properties and the richest known food source of Se is the Brazilian nut, found in the Amazon region, Brazil. The aim of this study was to evaluate the effect of the Brazilian nut supplementation on oxidative stress and inflammation markers and lipid stratus in HD patients. Forty HD patients (57.5% men, 53.3 ± 16.1yrs) were